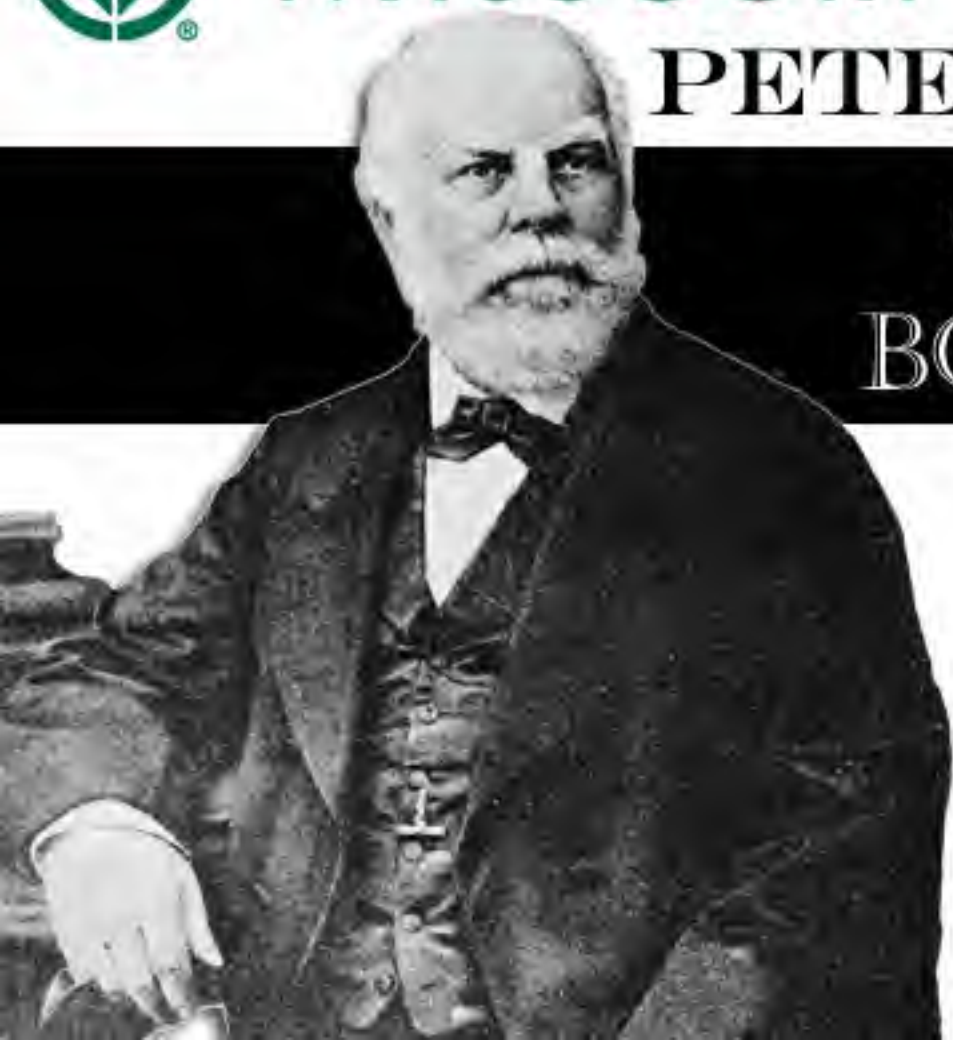


PETER H. RAVEN LIBRARY

GEORGE ENGELMANN  
BOTANICAL NOTEBOOKS



*Pagination Note:*

*Since many of the items lack a specific page number, the page number displayed online refers to the sequentially created number each item was given upon cataloging the materials.*

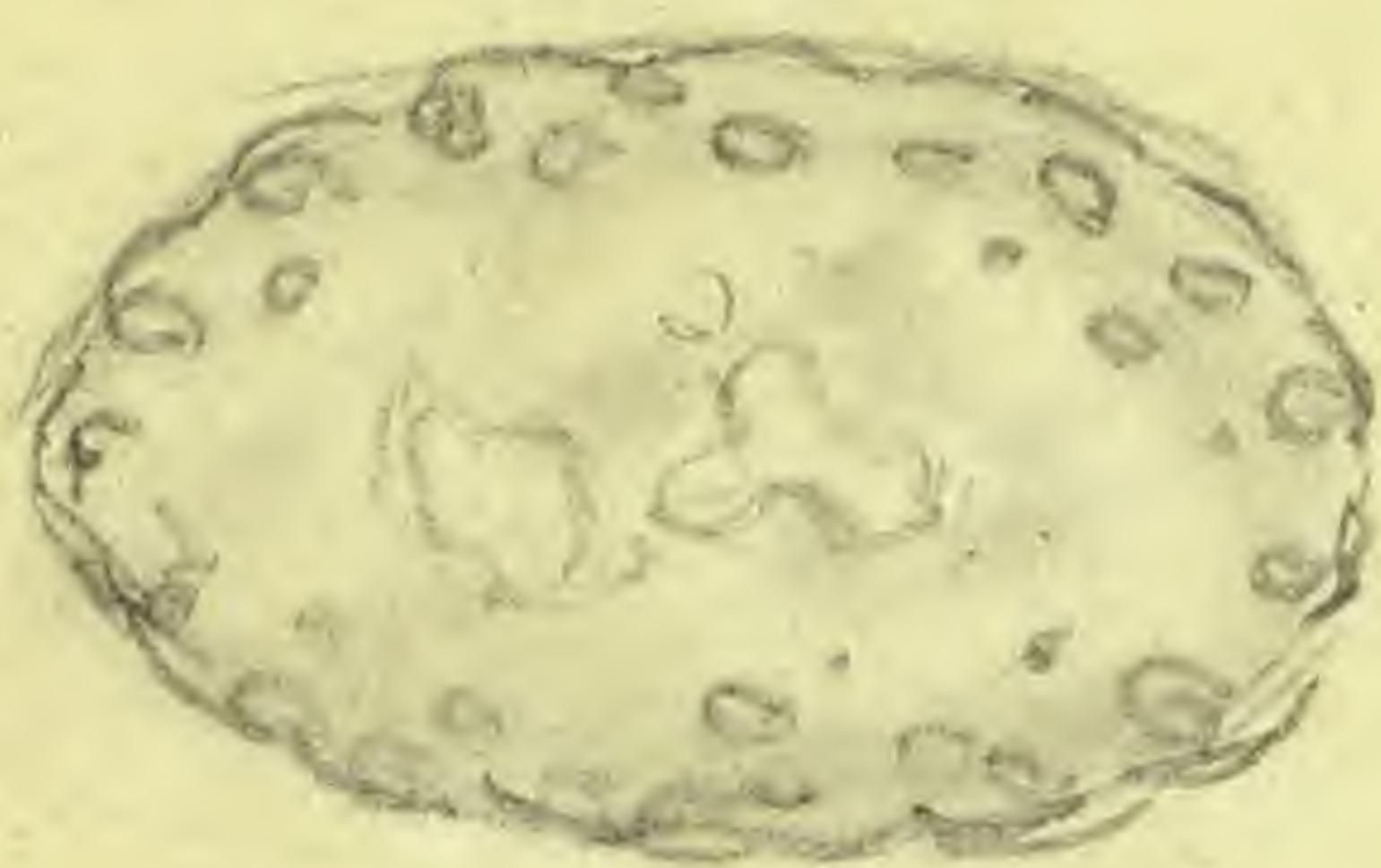


*Juncus*

Nov 2 1865

North American Herbarium of Acad. Philad. without name or  
really North American?? any label

rad. caespitosa, culmus foliosus, erectus, 18-24 poll altus,  
folia teretia nodosa



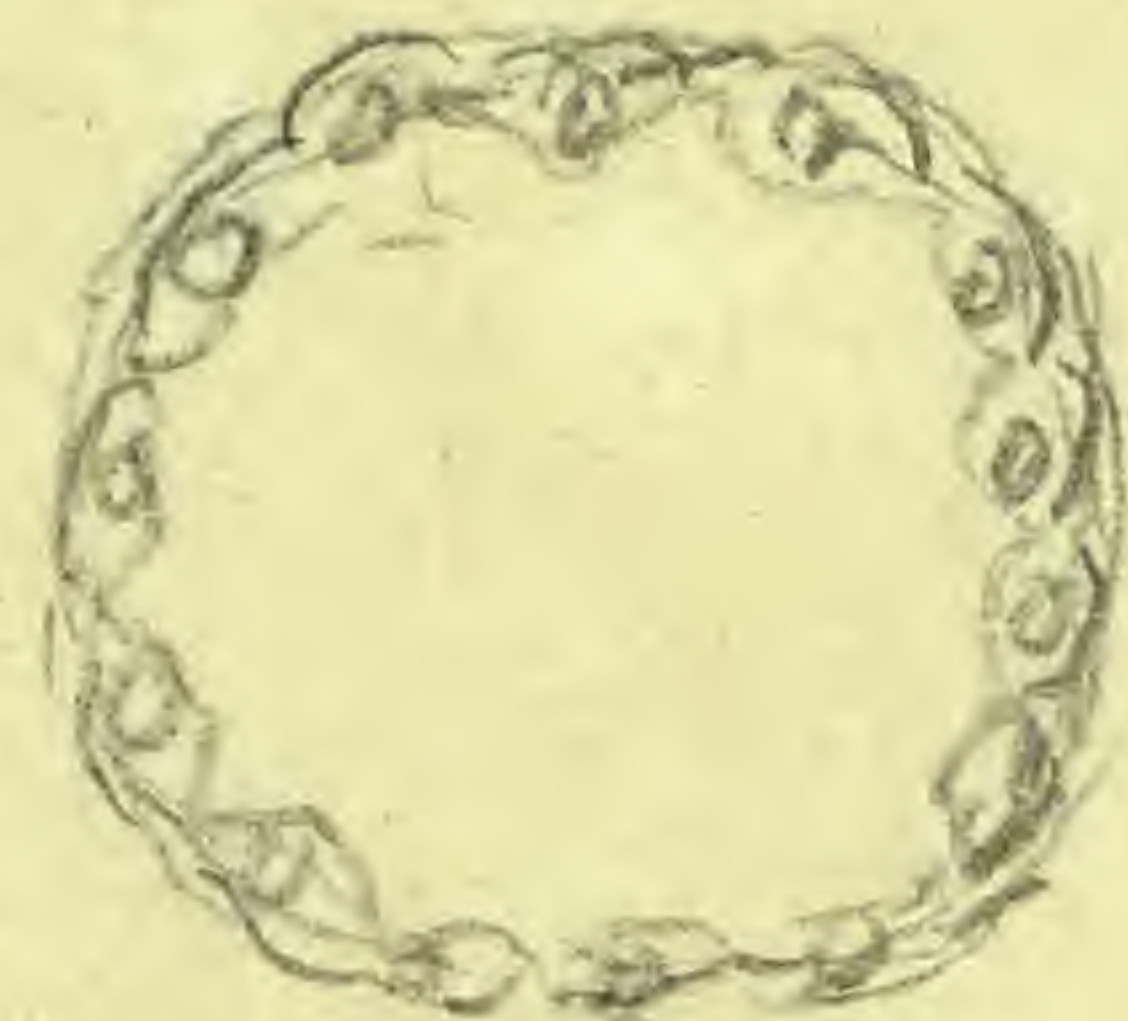
seed of stem

fructus, cum

Carminis

irregularibus

littera compressus



X 10



section of soaked leaf



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



ALEX. LEITCH,

APOTHECARY & PHARMACEUTIST,

Marble Building Cor. Fourth & Olive Sts. St. Louis, Mo.

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



*Juncus*

Nov 3<sup>rd</sup> - 1865

North Am. Herb. of Acad. Philad. without label.  
really North American? possibly Baldivia, Bay of Maldonado, on the La Plata

heads 12-16 flower

fl. short pedicelled

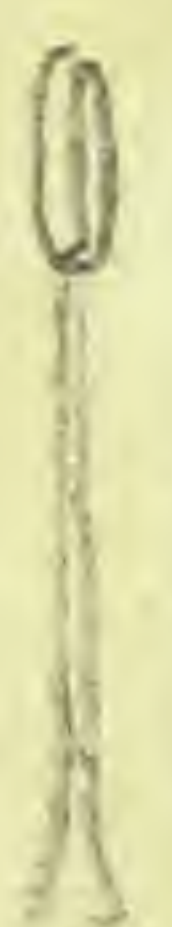
x 60



Dry

Soaked

Very young seed



sepal closed  
over the capsule  
sepal 3-branched  
lanceolate, late  
albo marginate

capsule  
apparently  
full grown

6 stamens  
one or two sometimes  
smaller, with  
less complete anther



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



ALEX. LEITCH,

APOTHECARY & PHARMACEUTIST,

Marble Building Cor. Fourth & Olive Sts. St. Louis, Mo.

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS

9503



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



March 30 1866

"mcdonade, Baldoni"

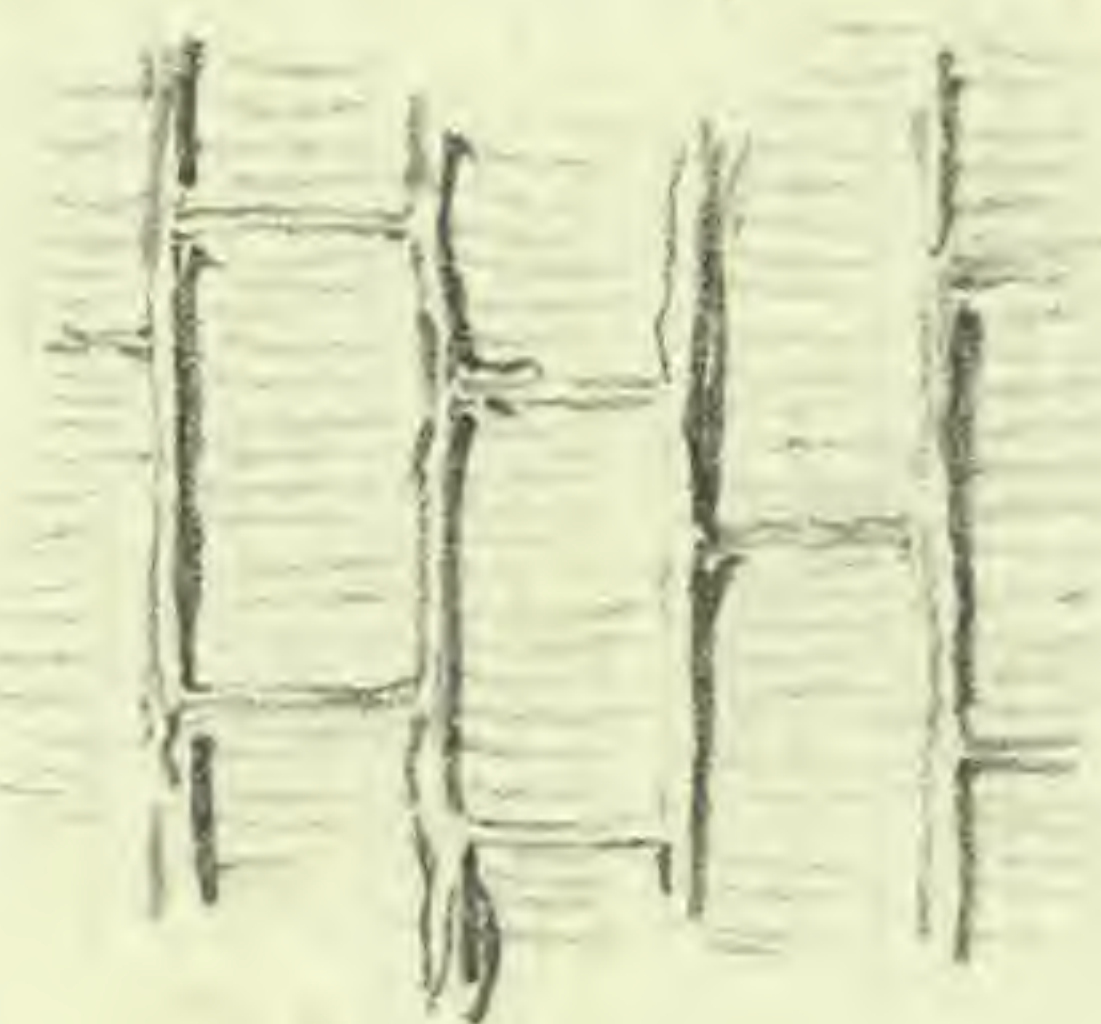
Hb. Ac. Phila.



6-7 ribs visible



velvety apex  
coherentes!  
post dehiscence



x150

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS



MISSOURI  
BOTANICAL  
GARDEN



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



ALEX. LEITCH,  
APOTHECARY AND CHEMIST,

Marble Building, Cor. Fourth and Olive Streets,

ST. LOUIS, MO.

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS

9504



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



*T. rudis* Kuentz

114

TRANS. OF THE ACAD. OF SCIENCE.

*Topaz in Utah.* By HENRY ENGELMANN.

During my explorations in Utah as Geologist of the Expedition under Capt. J. H. Simpson, Top. Eng'rs. U. S. A., in 1858 and 1859, I observed some remarkably beautiful crystals of Topaz among some detritus of trachytic porphyry. They were perfectly colorless, transparent, sharply developed, and of great lustre. They were all short columnar. The largest of them measured scarcely one third of an inch in the direction of the basal cleavage, which was highly perfect. I observed ten modifications: all crystals exhibited (according to Prof. Rose's designation)

$\infty c : b : a$	,	$\infty c : b : 2a$	,	$c : \infty b : : \infty a$	1
4 $c : b : \infty a$	,	2 $c : b : a$	;		
most of them also		2 $c : b : \infty a$	,	$c : b : a$	;
a few only		2 $c : \infty b : a$	,	and 4 (?) $c : b : a$	.

As in none of the crystals were both ends developed, I could not ascertain whether they were hemihedral, as is most common with topaz. The hardness of the mineral is = 8. It is infusible before the blowpipe; and when strongly heated is coated with small blisters, but does not show any change of color. It exhibits the reactions of fluorine, alumina, and silica. No tests were made for other elements, nor were the crystals examined in regard to pyro-electricity and polarization.



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



## ELÆACRINUS KIRKWOODENSIS, n. sp.

Body very small, subglobose, a little longer than wide, flattened above and below. Basal pieces very gently concave, with their edges on a level with the plane of the under side. Radial pieces (fork pieces) reaching to the base and occupying more than four fifths the entire length of the body, narrow below and widest in the middle, sides gently arched. Interradial pieces subdeltoid, very prominent towards the apex, much longer than wide, obtusely angulated below, acutely angulated above, and notched on either side a short distance below the summit. Pseudo-ambulacral areas extending from base to summit, narrow, deeply impressed; sides nearly parallel; pore pieces amounting to about fifty in each field. A longitudinal fissure or slit extends from the central summit opening downwards, separating the pore pieces of one side from their fellows of the opposite for the distance of about one fifth the length of the field, thence their inner edges are united in the median line to the base. Pseudo-ambulacral spaces lanceolate, sloping gently from their edges to the sutures. Ovarial apertures eight, very minute, situated at the notches of the interradial plates. Anal opening large, circular or very slightly elliptical. The surface markings are not distinct.



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved

MISSOURI  
BOTANICAL  
GARDEN



*Juncus rudis* Kunth !

March 18 1866

Brazil. meridional.

Sellow

ex Herb Kunth

ex Garcke mis



very unripe



unripe  
full grown ??

*Sepala aequilonga*  
anthera acuminata paulula brevior  
lobum membranaceo acuta



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



ALEX. LEITCH,  
APOTHECARY AND CHEMIST,

Marble Building, Cor. Fourth and Olive Streets,

ST. LOUIS, MO.

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS

9506



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



*Junonia microcephala* H&K  
*Ho. Ar. Phila. sine schela*  
*crispatus (annus?) erectus*

512-4

116

TRANS. OF THE ACAD. OF SCIENCE.

IV. Direction of Winds and number of Thunderstorms in '61 & '62.

1861.										Thunder- storms.
	E.	N.	N.E.	S.W.	N.W.	S.	W.	S.E.	Prevailing Winds.	
January.....	11	3	12	22	38	18	28	61	S.E. ....	
February....	4	2	2	35	24	19	41	60	S.E. ....	
March.....	12	11	10	23	30	19	42	40	W. & S.E....	
April .....	16	10	9	26	21	35	34	26	S. & W. ....	
May .....	26	10	23	21	8	13	49	35	W. & S.E. ...	
June .....	12	21	22	20	25	26	8	41	S.E. ....	
July .....	3	31	14	21	26	46	15	29	S. ....	
August .....	18	24	58	17	11	18	3	37	N.E. ....	
September...	6	14	18	26	30	13	21	52	S.E. & N.W. ....	
October .....	12	9	5	21	30	33	30	46	S.E. & S. ....	
November....	7	15	8	22	27	20	36	44	S.E. & W. ....	
December ...	9	19	9	25	23	33	17	51	S.E. & S. ....	
	136	169	190	279	293	293	324	522	S.E. ....	

1862.										Th. st's.
	E.	S.W.	N.	N.E.	W.	S.	N.W.	S.E.	Prevailing Winds.	
Jan.....	19	6	19	23	29	3	38	51	S.E. ....	
Feb.....	14	9	18	16	22	7	39	43	S.E. & N.W. ....	
March ...	9	14	3	15	59	10	34	43	W., S.E. & N.W. ....	
April ....	12	13	18	31	18	11	34	47	S.E., N.W. & N.E. ....	
May.....	12	18	14	38	18	30	14	44	S.E. & N.E. ....	
June ....	3	29	24	16	8	36	26	23	S., S.W., N.W., N. & S.E. ....	
July.....	5	25	17	7	2	24	31	77	S.E. ....	
August..	6	16	16	45	5	22	28	48	S.E. & N.E. ....	
September...	16	10	21	18	11	18	13	79	S.E. & N.E. ....	



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



9507

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS

WISLIZENUS—ATMOSPHERIC ELECTRICITY. 115

*Additional Remarks on ATMOSPHERIC ELECTRICITY.*

By A. WISLIZENUS, M.D.

The delay in the publication of this volume enables me to add to my observations of atmospheric electricity in 1861, the result of my observations in 1862. The latter observations have been made in the same manner and by means of the same fine glass thread, which, after many thousand torsions, proves as good as ever. I present herewith in tabular form the general result of my observations in 1861 and 1862.

*I. Monthly mean of Positive Atmospheric Electricity in 1861 and 1862, at St. Louis, Mo., based upon daily observations at 6, 9, 12, 3, 6 and 9 o'clock, from morning till night.*

	Jan.	Feb.	Mar.	Ap'l.	May.	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Mean of Year.
1861*.16.5	12.1	9.8	8.8	7.8	4.0	3.7	3.4	3.0	3.0	7.1	10.0	14.3	8.4
1862...12.1	16.0	9.4	10.6	7.5	3.0	2.2	2.3	3.0	3.0	7.7	12.6	13.9	8.4

\* This table of 1861 differs in some decimals from that published on page 66 and in Diagram No. 1. Having discovered some errors, I calculated all my observations once more, and give now the present as the corrected table.



0 1 2 3 4 5 6 7 8 9 10  
cm copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



11 *Limnaea microcephala* H&K 11

Dec 20 1865

Anders of Gen. to W. Jamieson by 1859

at the Grey.

capitula fusca nigra  
in pediculis 8 floris  
in panicula polygama  
coarctata disposita



very unripe



*secula capsulaeque fusco-atra*

sepla 1 nervia, sub substituta 2 nervia

extension uncinata angustula

intention pour Breton, acte

Capsule in *J. microcephalus* HBK. shorter than sepals!




0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved

MISSOURI  
BOTANICAL  
GARDEN





**Alex. Leitch,**  
**APOTHECARY & PHARMACEUTIST,**  
 COR. 4TH & OLIVE STS., ST. LOUIS.

MISSOURI BOTANICAL GARDEN  
 GEORGE ENGELMANN PAPERS

9508



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI  
 BOTANICAL  
 GARDEN



July .....	2	.....	4	.....	.....	.....	.....	3	.....
August .....	3	.....	.....	.....	.....	.....	.....	2	.....
September .....	4	.....	.....	.....	.....	.....	.....	8	.....
October .....	3	.....	1	.....	1	.....	.....	1	.....
November .....	2	.....	3	.....	7	.....	.....	7	.....
December .....	2	.....	3	.....	.....	.....	.....	6	.....
	50 + el.	36 + el.	23 — el.	28 — el.	15 no el.	34 no el.			

Snowing was accompanied

	By Positive Electricity.		By Negative Electricity.		By no Electricity.	
	In 1861.	In 1862.	In 1861.	In 1862.	In 1861.	In 1862.
January .....	3	9	.....	2	.....	.....
February .....	12	8	.....	1	.....	.....
March .....	3	12	.....	.....	.....	.....
October .....	.....	1	.....	.....	.....	.....
November .....	.....	4	.....	.....	.....	.....
December .....	5	2	2	.....	.....	1
	23 + el.	36 + el.	2 — el.	3 — el.	.....	1 no el.

# REMARKS.

The monthly mean of atmospheric electricity in 1862 was not quite so regular as that in 1861. While in 1861 an un-

515-7



0 1 2 3 4 5 6 7 8 9 10  
cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



January, February, November and December; the second with a mean electricity by the months of March, April, May and October; and the third with the lowest electricity by the months of June, July, August and September.

The aggregate monthly mean of

The first group in 1861 is 52.9—in 1862, 54.6
The second “ “ 33.5 “ 35.2
The third “ “ 14.1 “ 10.5

Thus in 1861 the third group prevailed, and in 1862 the first and second. But these differences are so well balanced throughout the year, that the mean of the whole year in 1861 and in 1862 is exactly the same, namely, 8.4. Such an identity in the yearly result, even to decimals, is of course not to be expected every year; but it seems to prove, at least, that the yearly mean of electricity is as constant as that of temperature, of relative humidity, and of atmospheric pressure.

The third table, showing the daily periodicity of atmospheric electricity, confirms the daily two maxima and two minima of electricity as an undeniable fact.

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS

5056



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



*Senecio amibiflorus* Ehrh  
*syriacus* Reub

France, Corsica

Aug 18 1865

x60



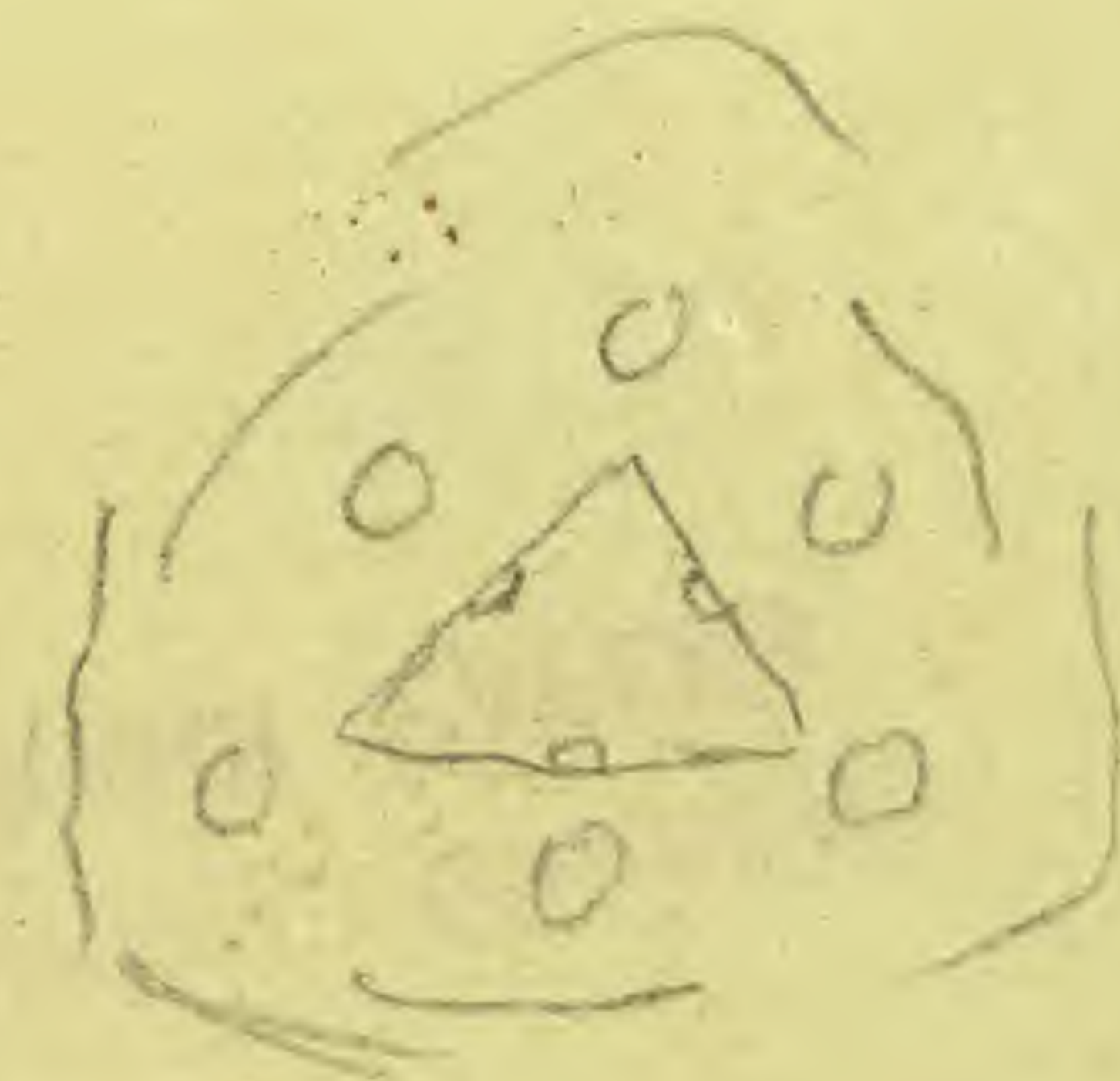
very unripe

x10



In Swedish specimen Fries  
Herb norm frs 16

flowers only 2 mm long, fruit 3 mm



anthers as long  
as exterior sepals

is there really in  
one cell capsule?  
fruit too young to decide



Frankfurt  
exactly the same  
flowers a little smaller



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



ALEX. LEITCH,

APOTHECARY & PHARMACEUTIST,

Marble Building Cor. Fourth & Olive Sts. St. Louis, Mo.

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS

9510



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



*Juncus acubiflorus*

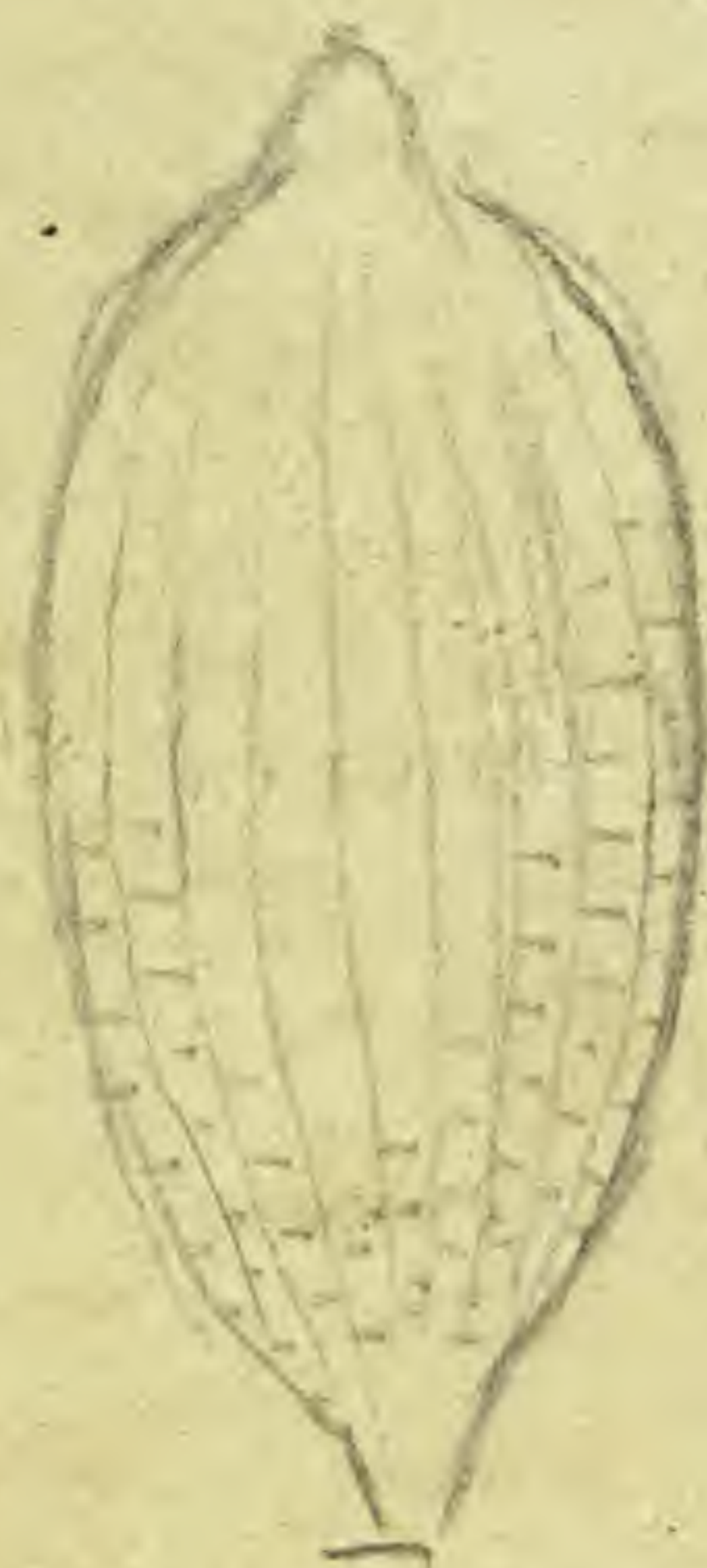
var. *multiflorus*

W. & A.

Oct 12 1865

W. & A. for long

x 60



x 10



sepals equal  
anthers not aristate



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



**ALEX. LEITCH,**  
**APOTHECARY & PHARMACEUTIST,**

Marble Building Cor. Fourth & Olive Sts. St. Louis, Mo.

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS

1156



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



"*I. sylvestris*"

Oct 13 1865

Triest, Tommasini - HB Gray

x60



sepals equal

interior ones

not aristate



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



**ALEX. LEITCH,**  
**APOTHECARY & PHARMACEUTIST,**

Marble Building Cor. Fourth & Olive Sts. St. Louis, Mo.

9512

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



*Dimensions*.—Length, 0.20 of an inch; width, 0.18.  
The *Elæacrinus Kirkwoodensis* is nearly allied to *E.*  
(*Pentremites*) *melo*, from which it is distinguished by its  
much smaller size and less deeply excavated base. It also  
occupies a higher geological position.

Occurs in the St. Louis Limestone (Carboniferous) on the  
Pacific railroad near Kirkwood, St. Louis county, Missouri.

8

*J. atratus* Krock Sil  
Mey. - Leich. N. IV. 226.  
*J. sulcatus* Reichb.  
*J. septangulus* Pater.  
*J. sylvaticus* var Koch, Kunt.

518-9



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



cumstances prevented me from obtaining more than a few crystals, which are now deposited in the collection of the Smithsonian Institute; a few others are also in the hands of members of the party. We were travelling at the time by forced night marches with nearly worn out animals, seeking to gain a spring of water in a distant range of mountains. This desert was then entirely unexplored. I have but little doubt that more interesting materials are to be found at the same point.

The mountains of the former Territory of Utah promise a rich yield to the mineralogist. We know already of gold and silver ores in the east, west and south part of that district; of copper and lead ores in the south, and I have discovered the latter also in the centre of it; of specular iron ores and native sulphur in the Rocky Mountains and near Little Salt Lake; of rock salt in the mountains south-east of Utah Lake; of native alum near Salt Lake; of various other salts in the deserts; and of silicates, composing the granites, porphyries, diorites, trachytes, and lavas, nearly over the whole area.

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS

9513



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



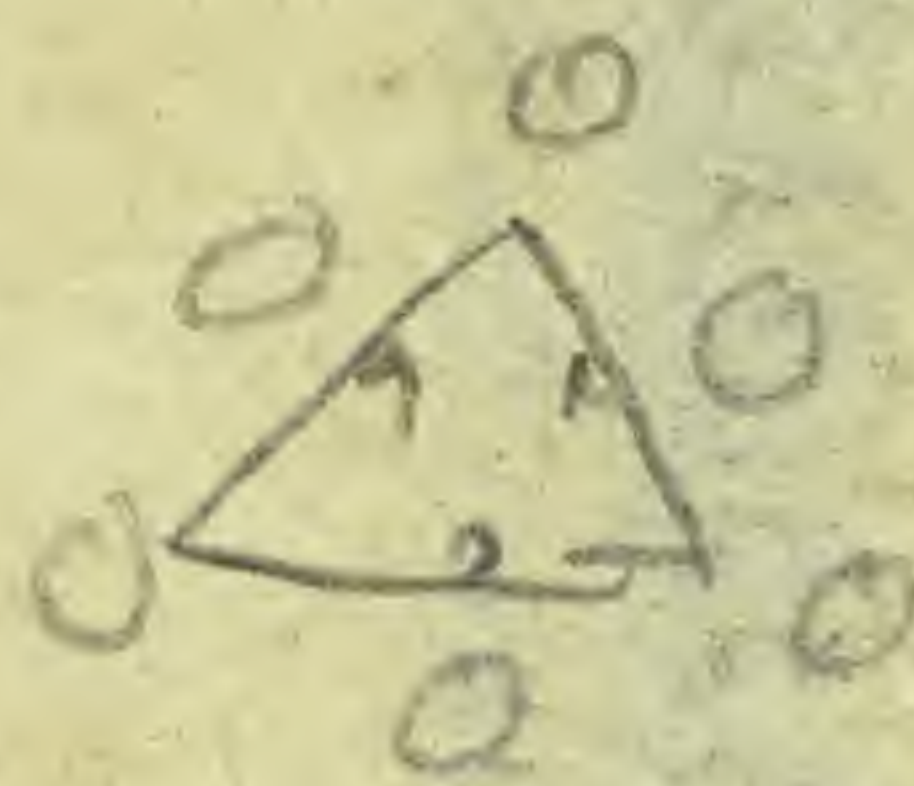
*Simons atratus* Hook  
*septangulos* Peterm.

Oct 13. 1865  
Leipzig Kunze  
- Hb. HB M.

x60



x10



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



ALEX. LEITCH,

APOTHECARY & PHARMACEUTIST,

Marble Building Cor. Fourth & Olive Sts. St. Louis, Mo.

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS

9514



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN